



Lowering the Cost of Mission Operations: JPL's Mission Infrastructure Service

Robin Dumas

Christian Hidalgo, Vu Nguyen, Stephen Ng

Jet Propulsion Laboratory, California Institute of Technology

Objective:

Provide a shared platform infrastructure for operations applications that will reduce mission cost through consolidation and virtualization



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The Audience . . .

- | | |
|--------------------------|----|
| 1. Mission Operations | 0% |
| 2. Project Management | 0% |
| 3. Other Managers | 0% |
| 4. IT Solution Providers | 0% |
| 5. Other | 0% |



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The story begins . . .

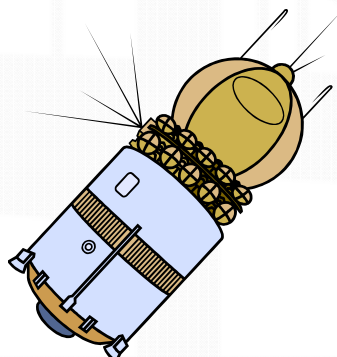
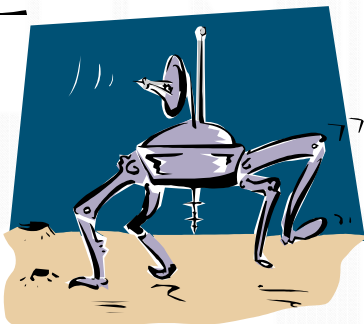
- Once upon a time . . .
- **AND THIS IS NO S#@%!** . . .
- When I worked on Project Name Here
we did it like this . . .



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It went like this . . .

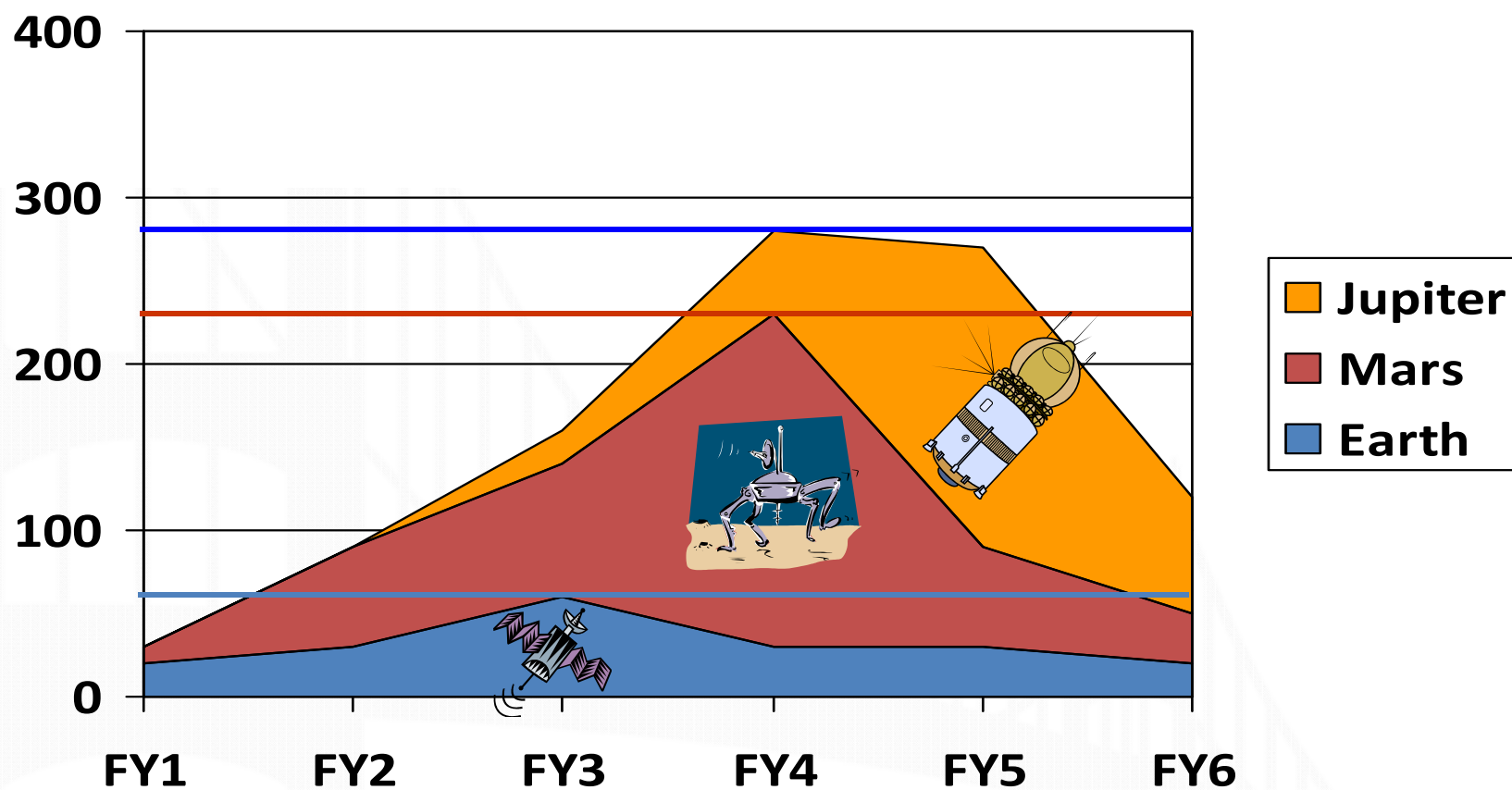




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Which meant . . .

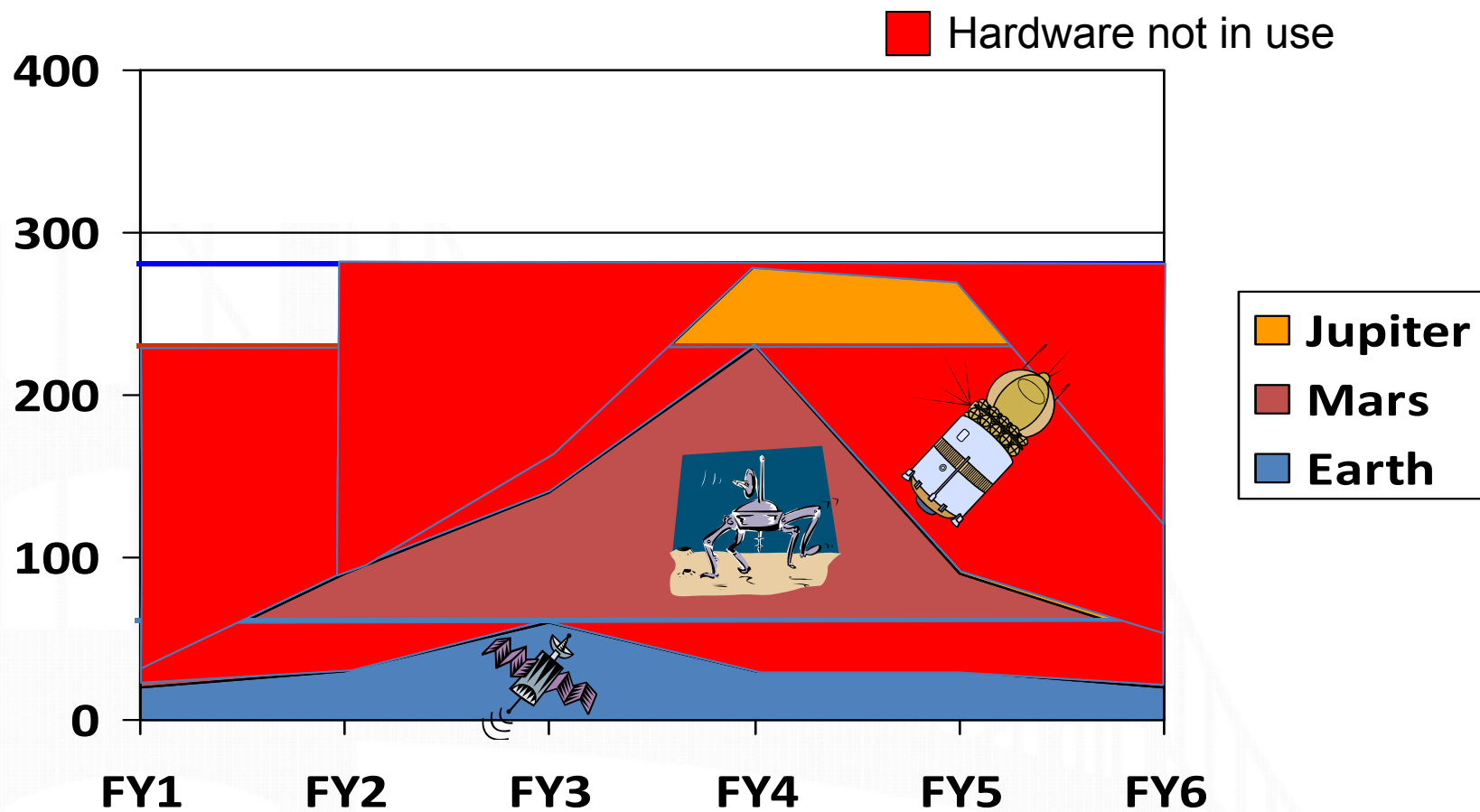




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Which meant . . .





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And looked like . . .



Can you relate to this?

1. Yes
2. No



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Enter our hero . . .



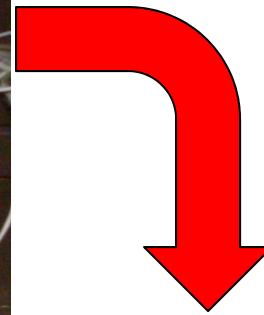
- Has an idea to:
 - Reduce mission operations costs
 - Reduce total cost of ownership
 - Utilize virtualization
 - Maximize use of computing infrastructure
- Means a paradigm shift for projects
 - Must phase costs differently
 - Don't 'own' the hardware



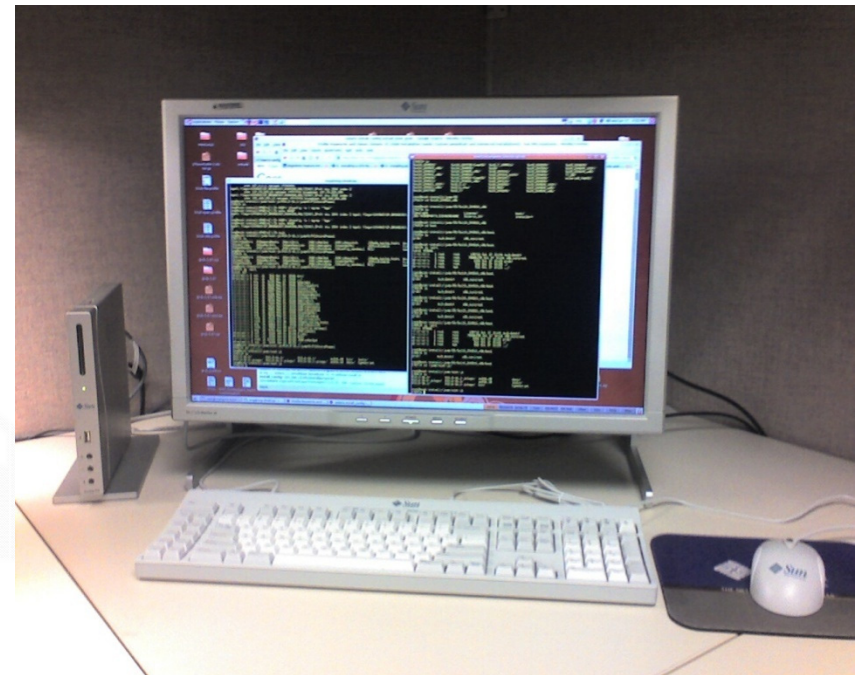
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The magic happens . . .



- Reduces footprint
- Reduces power consumption
- Reduces HVAC usage



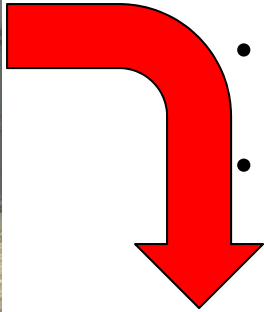


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And the IT knight slays the hordes . . .



- 
- Reduces footprint
 - Reduces the number of IT components
 - Reduces risk by providing redundancy and failover

- Delivers blade server modules
- Delivers thin client technology
- Provides data storage & archival
- Provides database hosting
- Can use AMMOS/MGSS software and CM Processes





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MIS Security & Authentication

- Data Security
 - Sun Ray Thin Client server + Sun Ray Server Software
 - Data stays on the server, in a secure data center at all times
 - Ensures customer data security
- Supports two-factor authentication
 - *Something you have:* Smart card
 - *Something you know:* Password
- Utilizes LDAP for authentication





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What types of benefits would you hope to see most?

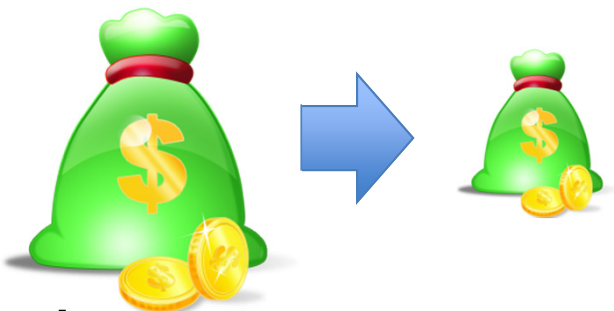
1. Reduced Cost
2. Improved usage of computing infrastructure
3. Reduced carbon footprint
4. Reduced Risk



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Benefits . . .

- Improves Cost Savings 
 - Eliminates initial hardware investment cost to projects/missions
 - Reduces system administration costs by:
 - 25% during phases C/D
 - 50% during phase E
 - Reduces amount of hardware that has to be acquired
 - Reduces total cost of ownership (reduces costs over time)



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Benefits cont'd

- Increases usability and flexibility
 - Maximizes the use of computing infrastructure, power and HVAC
 - Enables the ability to increase or decrease usage to meet changing project needs
 - Flexible availability of resources to accommodate unanticipated project extensions/delays/cancellations



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Benefits cont'd

- Reduces risk
 - Provides robust IT infrastructure that can be replenished without project impact
 - Improves redundancy
 - Increases availability
 - Improves vendor support level
 - Eliminates antiquated hardware



MIS Deployed in Critical Events MSA at JPL





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How Important is testing to you?

1. Not Important
2. Somewhat Important
3. Important
4. Very Important
5. Critical



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MIS Was Successfully Tested

- Project Testing – Several projects tested their operations applications using the MIS:
 - Cassini
 - DAWN
 - EPOXI
 - Mars Exploration Rover (MER)
 - Mars Reconnaissance Orbiter
 - Mars Science Laboratory



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MIS Was Successfully Tested cont'd

- JPL OCIO Testing
 - SUN Blade server modules were used to test the Jumpstart (Solaris) & Kickstart (Linux)
 - Also tested Third Party Software/Distributed Software
 - MIST team performed 7 months of testing using the Blade server modules and Sun Ray
 - Tested system virtualization and failover



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MIS is being successfully used

- EPOXI
 - Supported Hartley 2 encounter in November 2010 using MIS facilities in B230/109
 - EPOXI still is using the MIS to perform after encounter activities
 - Mission extension cost proposal has been delivered to NASA and includes the MIS as their prime system
- DAWN is using MIS in preparation of their VESTA encounter in July 2011
- MSL project is using MIS
 - Currently testing all of their Ground Data System (GDS) subsystems and their applications
 - Will use in operations



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Future/potential customers

- MER – Performing system application testing using MIS (Linux & Solaris)
- AMMOS/MGSS has added MIS to their catalog and has requested MIS to support their Integration & Test group
- Providing MIS cost estimate to SMAP to support Assembly, Test, and Launch Operations (ATLO) and Testbed activities
- Voyager – Will perform system application testing in the near future

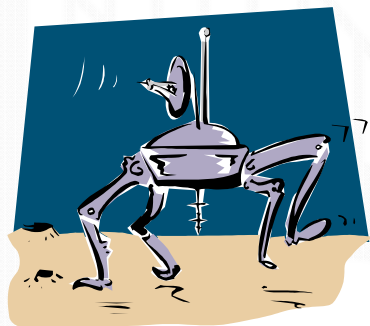
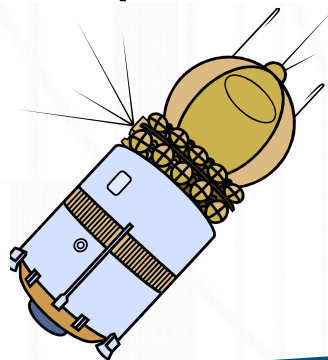


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And they all lived happily ever after . . .

Well beyond their prime
missions!



The End



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Any Questions ?????

